



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200
Fax 613 632-5246

Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name
PO042469	TWM001-VU	1	1	Net 30	M304P0.675W.091	304/316 Pipe .675 OD x .091 Wall Thickness : MATERIAL: TP304/TP316 STAINLESS STEEL SEAMLESS PIPE AS PER ASTM A312/ASME SA312 receive ft				100	2/12/2019	100		S153026	Stock	2/11/2019	\$ 5.00 / ft	1		\$500.00	TW Metals
		2			M304TR0.500W.035	304 Round Tube .500 X .035W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft				48		40		S152863	Stock	2/11/2019	\$ 1.84 / ft	1		\$73.69	TW Metals
		3			M304TR0.750W.049	304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft				200		200		S152885	Stock	2/11/2019	\$ 2.58 / ft	1		\$515.80	TW Metals
		4			M4130NT0.750W.049	4130 Round Tube .750 X .049W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft				20		18		S152787	Stock	2/11/2019	\$ 11.48 / ft	1		\$203.93	TW Metals
		5			M304TR0.375W.035	304 Tubing .375 X .035W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft				40		40		S152837	Stock	2/11/2019	\$ 3.75 / ft	1		\$150.00	TW Metals

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name
		6			M6061T6T0.500W.058	6061-T6 Round Tube .500 X.058W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				160		156		\$152946	Stock	2/11/2019	\$ 2.15 / ft	1		\$335.28	TW Metals
		7			M6061T6T0.625W.065	6061-T6 Round Tube .625 X.065W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				48		48		\$152963	Stock	2/11/2019	\$ 3.15 / ft	1		\$151.20	TW Metals
		8			M6061T6T0.625W.125	6061-T6 Round Tube 0.625 X.125W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				36		36		\$152983	Stock	2/11/2019	\$ 5.15 / ft	1		\$185.40	TW Metals
										Total:		638								\$2,115.29	



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO042469



Supplier: TWM001-VU
TW Metals
PO Box 933014
Atlanta, GA 31193-3014 USA
Phone: 585 768 5600
Fax: 585 768 5601

PO No: PO042469

PO Date: 2/1/19

Due Date: 2/12/19

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

E-MAILED
FEB 01 2019

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1 ✓ M		M304P0.675W.091		304/316 Pipe .675 OD x .091 Wall Thickness : MATERIAL: TP304/TP316 STAINLESS STEEL SEAMLESS PIPE AS PER ASTM A312/ASME SA312 receive ft	Firmed	-	2/12/19	100 ft ✓ 100ft	0 ft	100 ft	\$5.00/ft	\$500.00
2 ✓ M		M304TR0.500W.035		304 Round Tube .500 X .035W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft	Firmed	-	2/12/19	48 ft ✓ 40ft	0 ft	48 ft	\$1.8422/ft	\$88.43
3 ✓ M		M304TR0.750W.049		304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft	Firmed	-	2/12/19	200 ft ✓ 200ft	0 ft	200 ft	\$2.579/ft	\$515.80



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PURCHASE ORDER

PO042469



Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
4 AT		M4130NT0.750W.049		4130 Round Tube .750 X.049W : MATERIAL: AISI 4130N STEEL TUBING AS PER MIL-T-6736 OR AMS 6371/6360/6361/6362 6373/6374 receive ft	Firmed	-	2/12/19	20 ft ✓ 17.77	0 ft	20 ft AT 1902/12	\$11.4754/ft	\$229.51
5 AT		M304TR0.375W.035		304 Tubing .375 X .035W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft	Firmed	-	2/12/19	40 ft ✓ 40ft	0 ft	40 ft AT 1902/12	\$3.75/ft	\$150.00
6 AT		M6061T6T0.500W.058		6061-T6 Round Tube .500 X.058W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	-	2/12/19	160 ft ✓ 156ft	0 ft	160 ft AT 1902/12	\$2.1492/ft	\$343.87
7 AT		M6061T6T0.625W.065		6061-T6 Round Tube .625 X.065W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	-	2/12/19	40 ft ✓ 48ft	0 ft	40 ft AT 1902/12	\$3.1499/ft	\$126.00



Dart Aerospace Ltd.
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PURCHASE ORDER

PO042469



Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
8		M6061T6T0.625W.125		6061-T6 Round Tube 0.625 X.125W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	-	2/12/19	36 ft	0 ft	36 ft	\$5.15/ft	\$185.40
9		M6061T6T4.250XW.375		6061-T6 Tubing Round, 4.250" OD X 0.375" Wall	Firmed	-	2/12/19	12 ft	0 ft	12 ft	\$41.50/ft	\$498.00

Grand Total: \$2,637.00

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable). No Raw Metals from China or Soviet Bloc Countries
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program.

A049 supplier awareness.

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 2/1/19 10:31 AM dart.lavoie.chantal



O'Neal High-Performance Metals Group



Packing
Slip

ORDER NO.: 80988253

FROM: CHIC

PAGE 1

CUST NUMBER: 1203820 NET WGT: 168.974 REQ.DATE: 02/12/19 CONFIRMED
SOLD TO: SHIP TO:
DART AEROSPACE LTD DART AEROSPACE LTD
1270 ABERDEEN ST 1270 ABERDEEN ST
HAWKESBURY ON HAWKESBURY ON
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 02/05/19
TERMS: NET 30 DAYS VIA: COMMON CARRIER
F.O.B.: SHIPPING POINT FREIGHT: PREPAID
CUST ORD NO.: PO042469 RELEASE NO.:
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH
0001 38420 SMLS 304/L A-312 3/8 SCH 40 17/24 FT

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	100.000 FT	94.417 FT	94.417 FT	54.087	4

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00
PO: 49370254 HT: 548310 PC: 4 CUSTOMER QTY: UOM
MLT: CHINA MFG: CHINA SLB/CL: LARTH5

0001 36449 SMLS CD 304/L A269 1/2 OD X .035 WA 20' ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	48.000 FT	40.000 FT	40.000 FT	6.950	2

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00
PO: 49370254 HT: YX1611686 PC: 2 CUSTOMER QTY: UOM
MLT: CHINA MFG: CHINA SLB/CL: -

0003 36860 SMLS CD 304/L A269 3/4 OD X .049 WA 20' CL

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	200.000 FT	200.000 FT	200.000 FT	73.344	10

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00
PO: 49387568 HT: N180131AS13 PC: 10 CUSTOMER QTY: UOM
MLT: CHINA MFG: CHINA SLB/CL: -

1

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
REVIEW.
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing
Slip

ORDER NO.: 80988253

FROM: CHIC

PAGE 2

CUST NUMBER: 1203820 NET WGT: 168.974 REQ.DATE: 02/12/19 CONFIRMED
SOLD TO: SHIP TO:
DART AEROSPACE LTD DART AEROSPACE LTD
1270 ABERDEEN ST 1270 ABERDEEN ST
HAWKESBURY ON HAWKESBURY ON
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 02/05/19
TERMS: NET 30 DAYS VIA: COMMON CARRIER
F.O.B.: SHIPPING POINT FREIGHT: PREPAID
CUST ORD NO.: PO042469 RELEASE NO.:
RECEIVING PHONE:

LINE	ITEM	DESCRIPTION	WIDTH	LENGTH
0005	36225	SMLS CD 304/L A269 3/8 X .035 WA		20' ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	40.000 FT	40.000 FT	40.000 FT	5.083	2

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00
PO:49387556 HT:N180131AS13 PC: 2 CUSTOMER QTY: UOM
MLT:CHINA MFG:CHINA SLB/CL:-

0006 42276 D6061-T6 1/2 OD X .058 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	160.000 FT	156.000 FT	156.000 FT	14.770	13

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
PO:49386111 HT:F002655070001 PC: 13 CUSTOMER QTY: UOM
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:225622

0007 42558 D6061-T6 5/8 OD X .065 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	48.000 FT	48.000 FT	48.000 FT	6.428	4

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
PO:49398375 HT:F002904680003 PC: 4 CUSTOMER QTY: UOM
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:227768

1

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O'Neal High-Performance Metals Group



Packing
Slip

ORDER NO.: 80988253

FROM: CHIC

PAGE 3

CUST NUMBER: 1203820 NET WGT: 168.974 REQ.DATE: 02/12/19 CONFIRMED
SOLD TO: SHIP TO:
DART AEROSPACE LTD DART AEROSPACE LTD
1270 ABERDEEN ST 1270 ABERDEEN ST
HAWKESBURY ON HAWKESBURY ON
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 02/05/19
TERMS: NET 30 DAYS VIA: COMMON CARRIER
F.O.B.: SHIPPING POINT FREIGHT: PREPAID
CUST ORD NO.: PO042469 RELEASE NO.:
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH
0008 42588 D6061-T6 5/8 OD X .125 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	36.000 FT	36.000 FT	36.000 FT	8.312	3

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
PO:49383418 HT:F002625360001 PC: 3 CUSTOMER QTY: UOM
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:225211

BROKERS LIVINGSTON INTERNATIONAL

AREA		TYPE OF PKG	PKGS	GRS WEIGHT	WIDTH	LENGTH	HGHT
YRC	REDDICRATE	1.000	165.000	6.0000	246.0000	6	
					CUBIC FT	5.1250	
YRC	CRTN STRAP TO BOARD	1.000	72.000	6.0000	290.0000	3	
					CUBIC FT	3.0208	
		2.000	237.000				

BY: CS
RT 000-

UNLOAD TYPE: NONE SPECIFIED

DATE SHIPPED _____

DATE FILLED _____

THANK YOU FOR THIS ORDER

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O'Neal High-Performance Metals Group



**Packing
Slip**

ORDER NO.: 80988253

FROM: CHIC

PAGE 4

CUST NUMBER: 1203820	NET WGT: 168.974	REQ.DATE: 02/12/19	CONFIRMED
SOLD TO:	SHIP TO:		
DART AEROSPACE LTD	DART AEROSPACE LTD		
1270 ABERDEEN ST	1270 ABERDEEN ST		
HAWKESBURY ON	HAWKESBURY ON		
CANADA	CN K6A 1K7	ONTARIO CANADA	CN K6A 1K7

SALESPERSON: DONNA SMALLEY	SHIP BY: 02/05/19
TERMS: NET 30 DAYS	235 TUBEWAY
F.O.B.: SHIPPING POINT	CAROL STREAM IL 60188
CUST ORD NO.: PO042469	
VIA: COMMON CARRIER	
FREIGHT: PREPAID	
RELEASE NO.:	
RECEIVING PHONE:	

"TW Metals MSDS data is available on our web site at www.twmetals.com. MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

"CERTIFICATE OF CONFORMANCE"

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for coniferous non-manufactured wood packing material"

Authorized Test Report Clerk  Date: 2/05/19

These commodities have been exported from the United States in accordance with the U.S. export control laws, export administrations regulations. Diversion contrary to U.S. law prohibited.

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW.
<http://www.twmetals.com/invoice-terms.html>

WLPSSW060053

MILL INSPECTION CERTIFICATE
EN 10204 3.1

CHANGSHU WALSIN SPECIALTY STEEL CO., LTD.

CUSTOMER: TA CHEN STAINLESS PIPE CO.,LTD. DATE: 20180808 COMMODITY: STAINLESS STEEL SEAMLESS PIPE DELIVERY CONDITION: COLD FINISHED,SOLUTION ANNEALED AND PICKLED															HEAT NO.: 548310 SPECIFICATION: ASTM A312 / A376-14,ASME SA312-17,SA376-17 CERTIFICATE NO.: 201808052508185 GRADE: TP304/304L														
ELEMENTS															CHEMICAL COMPOSITION (WT%)														
mm		C	Si	Mn	P	S	Ni	Cr	Mo	N	Cu	Ti	Nb	Ni+Ta	Co	V	B	Al	Sb	Pb	As	Sn	Fe	Bi	Zr	Al+Ti	PREN	Ferrite content	
max		0.035	0.750	2.000	0.045	0.0300	11.000	20.000																					
RESULTS		0.024	0.280	1.630	0.027	0.0017	8.070	18.200	0.240		0.750																		

SIZE OR(T)*WT(T)*L(G)(mm)	PACKAGE NO.	PIECES	WEIGHT		TS MPa	YS		EL(50mm) %	HARDNESS HRB	FLATTENING TEST	FLARING TEST	I.C. TEST	PITTING CORROSION (mg/dm² day)	GRAIN SIZE	Lot No.	HYDROSTATIC TEST MPa	EDDY CURRENT TEST	ULTRASONIC TEST
			g	kg		0.2% MPa	1% MPa											
3/8"40S*6095-7315	TA20-30	23	535.86	138	630.631	309.918	/	58.558	8061	GOOD	/	GOOD	/	/	201804-TG-C38	/	GOOD	/
TOTAL:			535.86	138														

TW METALS
 REPORTS
 11 JAN 11 19
 T S T
 ACCEPTED BY

REMARKS:
 1. WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN BEEN MANUFACTURED, SAMPLED, TESTED AND INSPECTED IN ACCORDANCE WITH THE RESULTS OF THE CONTRACT, AND CONFORM TO THE SPECIFICATION ABOVE.
 2. MATERIAL FREE FROM MERCURY CONTAMINATION AND RADIOACTIVE CONTAMINATION
 3. NO REPAIR BY WELDING.
 4. THE CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF THE COMPANY.

ADDRESS: 2# HAIYANG ROAD, HAIYU TOWIN, CHANGSHU CITY, JIANGSU PROVINCE, CHINA 215519 TEL: +86-512-52566250 FAX: +86-512-52568027

SPECIFICATION CONTROL DRAWING

Line 1
M304P0.675W.091

PURCHASE MATERIAL: TP304/TP316 STAINLESS STEEL SEAMLESS PIPE

SPECIFICATION: ASTM A312 / ASME SA312

PART NUMBER:

M304P0.DDD|W|TTT
OD WALL THICKNESS

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES PER NPS DESIGNATION (REF TABLE 1)
AND "TTT" = WALL THICKNESS IN INCHES PER PIPE SCHEDULE (REF TABLE 1)

EG. 3/8 SCHEDULE 40 PIPE = M304P0.675W.091

TABLE 1: DIMENSIONS OF NPS PIPE (REF ANSI B36.10/19)

NPS Designation	Outside Diameter (in)	Pipe Schedule Wall Thickness (in)	
		SCHEDULE 40	SCHEDULE 80
1/8	0.405	0.068	0.095
1/4	0.540	0.088	0.119
3/8	0.675	0.091	0.126
1/2	0.840	0.109	0.147
3/4	1.050	0.113	0.154
1	1.315	0.133	0.179
1-1/4	1.660	0.140	0.191
1-1/2	1.900	0.145	0.200
2	2.375	0.154	0.218
2-1/2	2.875	0.203	0.276
3	3.500	0.216	0.300
3-1/2	4.000	0.226	0.318
4	4.500	0.237	0.337

RELEASED

2017 JUN 19
ECN 17-510

APPROVED

A	NEW ISSUE	DESCRIPTION	CP	BY	DATE
REV.					
DESIGN	CP	DART AEROSPACE LTD			17.02.24
DRAWN	CP	HAWKESBURY, ONTARIO, CANADA			
CHECKED	ML	DRAWING NO.			
MFG. APPR.	DD	M304P			
APPROVED	WM	TITLE			
DE APPR.	CP	304/316 PIPE			
DATE	17.02.24				

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IT IS TO BE USED FOR ANY PURPOSE OR FOR ANY OTHER PURPOSE
WITHOUT PERMISSION FROM DART AEROSPACE LTD

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304PD 675W 091
 DATE: 19/02/12

PO / BATCH NO.: P0002469/5153026

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 10004
 QUANTITY INSPECTED: 100FT
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.675"
 THICKNESS RECEIVED: 3/8 SCH 40
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	<u>AS M A312</u>
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	<u>M-548310</u>
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>6</u> DATE: <u>FEB 12 2019</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MILL TEST REPORT

Purchaser.: TW METALS-Carol Stream				Certificate No.: 2017-12-176					
Contract No.: TWM P.O.No.: M49370254				Date of Issue.: 2017.12.31					
Commodity: Stainless Steel Seamless Tubes				Specifications: ASTM A213-17/ASME SA213-15/ASTM A269-15a EAW					
Process: Cold Drawn				Delivery Condition: OD Polished to 240 Grit					
Steel Grade	Heat Number	Lot Number	Dimensions				Quantity		
							Pieces	Feet	
TP304/TP304L	YX1611-686	10-81	1/2"x0.035"x20'				750	15,000	
Chemical Composition by Weight (%)									
Element	C	Mn	P	S	Si	Cr	Ni	Mo	Co
Requirements	≤0.035	≤2.00	≤0.045	≤0.030	≤1.00	18.00-20.00	8.00-12.00	-	-
Ladle Analysis	0.024	1.27	0.030	0.002	0.33	18.48	8.06	-	-
Product Analysis	0.019	1.27	0.029	0.004	0.32	18.55	8.17	-	-
Mechanical Properties									
Test Item	Elongation (% in 2")		Tensile Strength (PSI)			Yield Strength (PSI)			
			Rm			Rp / 0.2%			
Requirements	≥35		≥75,000			≥30,000			
Test Results	61/62		99,000/100,000			44,000/45,000			
Test Item	Reduction of Area Z (%)	Hardness	Cold Bend Test	Flaring Test	Flattening Test	Flange Test	P.M.I. Test		
Requirements	-	HRB≤80	-	22%	e=0.09	-	-		
Test Results	-	77/79	-	Passed	Passed	-	OK		
Test Item	Eddy Current Test	Air Underwater Pressure Test	Ultrasonic Test	Intergranular Corrosion Test	Macroscopic Inspection				
Requirements	ASTM E 426	-	-	ASTM A262 E	End Cut	Appearance			
Test Results	Passed	-	-	OK	OK	OK			

ISO 9001:2008 Certified by CAS 117 16 QU 0053-06 ROS

PED Certified by SZUTEST 2195-PED-1526002

Additional Remarks:

- (1) All tubes annealed to above 1900 Deg F and water quenched below 800 Deg F in 3 minutes
- (2) All tubes tested per ASTM A1016-17
- (3) Materials is NACE MR0103-2007 compliant (per Section 2.5)
- (4) Materials is NACE MR0175/ISO 15156-2003 compliant (per Section 4.2.1)
- (5) In Compliance with EN 10204-3.1
- (6) In Compliance with RoHS Stipulation
- (7) No weld repair performed
- (8) Free from mercury contamination
- (9) Free from radioactive contamination
- (10) Billets melt and pipes/tubes manufactured in China
- (11) All tubes 100% PMI tested
- (12) All tubes 100% Eddy Current tested

CANNOT CERTIFY COMPLIANCE
FAR BAA / DFARS BAA / FAR TAA



By:

James Shi

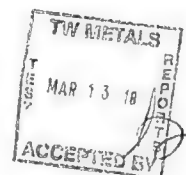
James Shi / Manager

Quality Control Department

We hereby certify that this report is true and correct.

Jiangsu Pufa Stainless Steel Tube Co., Ltd.

No. 99, Xuean Middle Road, Dongchen Town, Rugao City, Jiangsu Province, P.R.China



SPECIFICATION CONTROL DRAWING

Line 2.
M304TR0.500W.035

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION: ASTM A213 OR ASME SA213 OR ASTM A289

WALL THICKNESS TOLERANCE PER ASTM A289 AS FOLLOWS:

OD (IN)	PERMISSIBLE OD TOL (IN)	PERMISSIBLE WALL TOL
UP TO 1/4	±0.005	±15%
1/4 TO 1 1/4 EXCL	±0.005	±10%
1 1/4 TO 3 1/2 EXCL	±0.010	±10%
3 1/2 TO 5 1/2 EXCL	±0.015	±10%
5 1/2 TO 8 EXCL	±0.030	±10%

PART NUMBER:

M304TR0.500W.035

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES
AND "T.TT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W.065

RELEASED
R 08/28/23 MJB

B	REFORMAT DWG. ADD SPECS (ZN DB-1), REF PAR DB-020A	CP	08.10.20
A	NEW ISSUE	DS	01.06.08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR			
DATE	08.10.20		

DART AEROSPACE LTD HAWKSBURY ONTARIO CANADA	
DRAWING NO.	M304TR
TITLE	304/316 ROUND TUBING
SCALE	NTS
SHEET 1 OF 1	

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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304TRD.500W.035
 DATE: 1/22/12

PO / BATCH NO.: P0042469/S152863

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 4054
 QUANTITY INSPECTED: 4054
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.500"
 THICKNESS RECEIVED: 0.500"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y N	
CORROSION	Y <input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y N	ASTM A213
CORRECT THICKNESS	<input checked="" type="radio"/> Y N	
PHOTO REQUIRED	Y <input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y N	HT 881611-686
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 61</u> DATE: <u>FEB 12 2019</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MISCO

JIAXING MT STAINLESS STEEL CO.,LTD

MILL TEST CERTIFICATE

EN10204 3.1 CERTIFICATE

ISO 9001: 2015 TUV SUD CERT REGISTRATION No.: 01 100 095954

PED/97/23/CE EURO CERT CERTIFICATE NO:CN.CE.1110S1-02/14



Precisely Right.

CERTIFICATE NO. : 18MTC-181008-03

SALES CONTRACT NO.: M 49387568

COMMODITY: STAINLESS STEEL SEAMLESS TUBE

SPECIFICATION: ASTM A269-18a, ASTM A213-18, ASME SA213-17

PURCHASER: KASUGAI CO., LTD.

ORDER: M 49387568

DATE OF REPORT: 2018-10-8

Steel Grade	Heat No.	Dimensions			Quantity		Process	Delivery Condition	Macroscopic Inspection	
		O.D. (INCH)	W.T. (INCH)	Length (FT)	FT	Piece			End Cut	Appearance
TP304/304L	N180131AS13	3/4	0.049	20	10060	503	Cold-Drawn	Pickled & 320 Grit polish	Passed	Passed

Chemical Composition (W.T. %)

Element	C	Si	Mn	P	S	Cr	Ni	Mo
Requirements	≤0.035	≤1.00	≤2.00	≤0.045	≤0.030	18.0-20.0	8.0-11.0	-
Ladle Analysis	0.017	0.37	1.34	0.038	0.001	18.24	8.01	-

Mechanical Properties

Test Item	Y.S. (MPa)		T.S. (MPa)		EL. (%)		Reduction of Area Z (%)	Hardness HRB	Cold Bend Test	Flaring Test	Flattening Test	P.M.I. TEST
	Rp0.2	Rm	≥515	585	In2in	≥35						
Requirements	≥205	≥515	≥515	585	≥35	≥35	-	≤80	-	-	e=0.09	-
Test Results	265	265	585	585	47	47	-	77	Passed	Passed	Passed	Passed

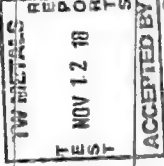
Non Destructive Tests

Test Item	Eddy Current Test	
	ASTM E 426	
	Passed	

Remarks :

- ASTM A269-18a, ASTM A213-18, ASME SA213-17
- TUBES TESTED PER ASTM A1016
- SOLUTION HEAT TREATMENT: 1050°C X 1.5m/min
- NO WELD REPAIR WAS PERFORMED
- PMI TESTING DONE ON EACH TUBE - SATISFACTORY
- IN COMPLIANCE WITH NACE MR0175/ISO 15156-2015
- FREE FROM MERCURY CONTAMINATION
- MATERIAL IS FREE FROM RADIOACTIVITY
- VISUAL CHECK IS SATISFACTORY
- COUNTRY OF ORIGIN: CHINA
- COUNTRY OF MELT: CHINA

1. WE HERE BY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN TESTED AND THE TEST RESULTS ARE IN COMPLIANCE WITH THE TERMS OF THE PURCHASE ORDER OR CONTRACT		Prepared by:	Approved by:
2. THE CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE COMPANY.			



ACCEPTED BY

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION: ASTM A213 OR ASME SA213 OR (ASTM A269)

WALL THICKNESS TOLERANCE PER ASTM A269 AS FOLLOWS:

	PERMISSIBLE OD TOL (IN)	PERMISSIBLE WALL TOL
UP TO 1/4	±0.005	±15%
1/4 TO 1/2 EXCL.	±0.005	±10%
1/2 TO 3/4 EXCL.	±0.010	±10%
3/4 TO 5/8 EXCL.	±0.015	±10%
5/8 TO 6 EXCL.	±0.030	±10%

PART NUMBER:

M304TR/D.DDD/W.TTT

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES
AND "TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W 065

RELEASED
08/10/20

B	REFORMAT DWG. ADD SPECS (ZN DB-1), REF PAR 08-020A	CP	08 10 20
A	NEW ISSUE	DS	01 06 08
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR			
DATE	08.10.20		
DART AEROSPACE LTD HAWKESBURY ONTARIO, CANADA			
DRAWING NO. M304TR			
REV. B			
SHEET 1 OF 1			
TITLE			
304/316 ROUND TUBING			
SCALE			
NTS			
DATE 08.10.20			
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304 TR0.750w249

PO / BATCH NO.: P0042464/S152885

DATE: 19/02/12

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 0.750"

QUANTITY RECEIVED: 200ft

THICKNESS RECEIVED: 0.750"

QUANTITY INSPECTED: 200ft

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	ASTM A269
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	HT-11.80131AS13
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>DAS 61</u>	SIGNED OFF BY: _____		
DATE: <u>9-89 FEB 12 2019</u>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 60673600 FROM: CRAN PAGE 1

CUST NUMBER: 1203820 NET WGT: 6.517 REQ.DATE: 02/12/19 CONFIRMED
 SOLD TO: SHIP TO:
 DART AEROSPACE LTD DART AEROSPACE LTD
 1270 ABERDEEN ST 1270 ABERDEEN ST
 HAWKESBURY ON HAWKESBURY ON
 CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 02/05/19
 TERMS: NET 30 DAYS VIA: COMMON CARRIER
 F.O.B.: SHIPPING POINT FREIGHT: PREPAID
 CUST ORD NO.: PO042469 IT 4 RELEASE NO.:
 RECEIVING PHONE:

LINE	ITEM DESCRIPTION	WIDTH	LENGTH
0001 33047	CDS 4130 6736 3/4 OD X .049 WA		17/24 FT

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	20.000 FT	17.771 FT	17.771 FT	6.517	1

** 1 TEST REPORTS REQUIRED **
 ** 1 CERTS REQUIRED **

ECCN: 9A991.d Export License: NLR Expiration Date: 0/00/00
 PO:49386235 HT:24211 PC: 1 CUSTOMER QTY: UOM
 MLT:UNITED STATES MFG:UNITED STATES SLB/CL:162122

BROKERS LIVINGSTON INTERNATIONAL

AREA	TYPE OF PKG	PKGS	GRS WEIGHT	WIDTH	LENGTH	HGHT
NEW PEN CARTON		1.000	26.517	4.0000	248.0000	4
Orders In Package - 1		Box No -	TWPK19005586	CUBIC FT	2.2963	
		1.000	26.517			

BY: Tom Weaver
 RT 000-

UNLOAD TYPE: NONE SPECIFIED

DATE SHIPPED _____

DATE FILLED _____

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
 PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
 REVIEW.
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



**Packing
Slip**

ORDER NO.: 60673600

FROM: CRAN

PAGE 2

CUST NUMBER: 1203820 NET WGT: 6.517 REQ.DATE: 02/12/19 CONFIRMED
SOLD TO: SHIP TO:
DART AEROSPACE LTD DART AEROSPACE LTD
1270 ABERDEEN ST 1270 ABERDEEN ST
HAWKESBURY ON HAWKESBURY ON
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 02/05/19
TERMS: NET 30 DAYS 27 ENGLEHARD DRIVE
F.O.B.: SHIPPING POINT MONROE TWP NJ 08831
CUST ORD NO.: PO042469 IT 4
VIA: COMMON CARRIER
FREIGHT: PREPAID
RELEASE NO.:
RECEIVING PHONE:

"TW Metals MSDS data is available on our web site at www.twmetals.com. MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

"CERTIFICATE OF CONFORMANCE"

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for coniferous non-manufactured wood packing material"

Electronically Generated Certificate-Valid without signature Date: 2/04/19

These commodities have been exported from the United States in accordance with the U.S. export control laws, export administrations regulations. Diversion contrary to U.S. law prohibited.

ANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
REVIEW.
<http://www.twmetals.com/invoice-terms.html>



PLYMOUTH TUBE CO. USA
 1209 East 12th Street, Streator, Illinois 61364
 Phone: (815) 673-1515 Fax: (815) 672-7343
TRUST YOUR SOURCE! ACCEPT NO SUBSTITUTIONS!



PRODUCT CERTIFICATION

SALES ORDER - LINE / RLS

162122 - 1 / 1

SHIP TO

TW Metals
 27 Englehard Drive
 Monroe Township, NJ 08831
 USA

WORK ORDER 022929
 HEAT NUMBER 24211
 MELT SOURCE Timken Steel - Melt/Mfg. USA

CUSTOMER P.O. M 49386235	CUSTOMER PART 33047	QUANTITY 3,249.5	LADING NO ft 00101235	CERT ID / REV 01	CERT DATE 06/01/2018								
PART DESCRIPTION H07500490J000Z OD: 0.7500" Max: 0.7550" Min: 0.7450" Wall: 0.0490" Max: 0.0540" Min: 0.0440" Length: 17.00' /24.00' Spec: Mil-T 6736B Seamless Aircraft Grade: 4130 Finish: Cond N				<div style="border: 1px solid black; padding: 5px; text-align: center;"> TW METALS TEST JUN - 7 2018 ACCEPTED BY </div>									
CERTIFICATION REQUIREMENTS FAR BAA (FAR 52.225-1 Buy America Act Supplies). DFARS 252.225-7001 By America Act & Bal. of Payments Program FAR TAA (FAR 52.225-5 Trade Agreements)(Paragraph 1,3,4,5) This material was Eddy Current tested and conforms to the requirements of ASTM A-450. The Grain size is determined and reported by the raw material supplier in accordance to ASTM E-112. This raw material was magnetic particle inspected by the raw material supplier in accordance to AMS 2640J and/or ASTM E-1444, and rated as Frequency, and Severity to AMS 2301, latest revision. Yield is determined by using the 0.2% offset method. This material meets Plymouth ProMoly specifications													
Chemical Analysis													
C	Mn	P	S	Si	Al	Cr	Mo	Ni	Pb	Cu	V	Ti	Sn
.29	.56	.007	.007	.30	.032	1.02	.20	.13	0	.16	0	0	.009
Physical Properties													
Freq.	Severity	Grain Size											
0	0	8											
Mechanical Properties													
TEST	UNITS	#TESTS	HIGH	LOW	AVERAGE	STD-DEV							
Tensile	Psi	36	114580	108440	111752	1386							
Yield	Psi	36	107380	102030	104853	1234							
Elongation	%	36	19	18	18	1							
Rockwell C	Rc	36	21	21	21	0							
TEST	RESULT												
Decarb/OD	Pass												
Total ID/OD decarb	Pass												
Additional Specification(s)													
AMS-T6736 B, AMS 6380M													

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streator in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

Jamie Beross
 Quality Assurance



PLYMOUTH TUBE CO. USA

1209 East 12th Street, Streator, Illinois 61364

Phone: (815) 673-1515 Fax: (815) 672-7343

TRUST YOUR SOURCE! ACCEPT NO SUBSTITUTIONS!



PRODUCT CERTIFICATION

SALES ORDER - LINE / RLS

162122 - 1 / 1

SHIP TO

TW Metals
27 Englehard Drive
Monroe Township, NJ 08831
USA

WORK ORDER

022929

HEAT NUMBER

24211

MELT SOURCE

Timken Steel - Melt/Mfg. USA

CUSTOMER P.O.	CUSTOMER PART	QUANTITY	LADING NO	CERT ID / REV	CERT DATE
M 49386235	33047	3,249.5 ft	00101235	01	06/01/2018
PART DESCRIPTION H07500490J000Z					
<p>This test report data is for the heat Chemistry Stated above.</p> <p>The material in this test report is:</p> <ol style="list-style-type: none">1) Drawn in the USA2) Free from Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE), and Mercury contamination.3) NAFTA compliant. <p>End of Certification</p>					

I certify that the results are a true and correct copy of the records prepared and maintained by Plymouth Tube Company, Streator in compliance with the requirements of the cited specification. Chemistry is as reported by the Steel supplier. This test report cannot be reproduced or distributed except in full without the written permission of Plymouth Tube.

Jamie Berossuff
Quality Assurance

SPECIFICATION CONTROL DRAWING

Line 4
M4130NT0.750W.035

PURCHASE MATERIAL: AISI 4130N SEAMLESS STEEL TUBING

SPECIFICATION: MIL-T-8736 OR AMS 6371 (6360) 6361, 6362, 6373, 6374

PART NUMBER: M4130N TD DDD W.TTT | DIA. | WALL |
WHERE: "D.DDD" = OUTER DIAMETER (IN INCHES)
AND "T.TT" = WALL THICKNESS (IN INCHES)

EG. 3/4" TUBING WITH .035" WALL = M4130NT0.750W.035

RELEASE
2012-04-16

B	REFORMAT DWG TO ACCOMMODATE ADDITIONAL TUBE DIAMETERS AND WALL THICKNESS			RP	12.04.02
A	NEW ISSUE			JB	01.03.16
REV	DESCRIPTION				
DESIGN	JB	DART AEROSPACE LTD			
DRAWN	RP	HAWKESBURY, ONTARIO, CANADA			
CHECKED	A.P.	DRAWING NO.			
MFG. APPR.	AS	M4130N-T			
APPROVED	SW	TITLE			
DE APPR.	#	STEEL TUBING			
DATE	12.04.02	NTS			
COPYRIGHT © 2001 BY DART AEROSPACE LTD					
THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS TO BE USED ONLY FOR THE PURPOSES SPECIFIED HEREIN. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING BY DART AEROSPACE LTD.					

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130NTP.750W.049
 DATE: 19/04/12

PO / BATCH NO.: P0042469/S152787

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 12.775t
 QUANTITY INSPECTED: 12.775t
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.750"
 THICKNESS RECEIVED: 0.350"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	N	
CORROSION	Y	<input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	N	AMS 6360
CORRECT THICKNESS	<input checked="" type="checkbox"/>	N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	N	MT 24211
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>61</u> DATE: <u>FEB 12 2019</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MISCO

JIAXING MT STAINLESS STEEL CO., LTD

MILL TEST CERTIFICATE

EN10204 3.1 CERTIFICATE

ISO 9001: 2015 TUV SUD CERT REGISTRATION No.: 01 100 095954
PED/97/23/CE EURO CERT CERTIFICATE NO: CN.CE.1110S1-02/14



Precisely Right.

CERTIFICATE NO.: 18MTC-181008-03

SALES CONTRACT NO.: M 49387556

COMMODITY: STAINLESS STEEL SEAMLESS TUBE

SPECIFICATION: ASTM A269-15a, ASTM A213-17, ASME SA213-17

PURCHASER: KASUGAI CO., LTD.

ORDER: M 49387556

DATE OF REPORT: 2018-10-8

Steel Grade	Heat No.	Dimensions			Quantity		Process	Delivery Condition	Macroscopic Inspection	
		O.D. (INCH)	W.T. (INCH)	Length (FT)	FT	Piece			End Cut	Appearance
TP304/304L	N180131/AS13	3/8	0.035	20	9000	450	Cold-Drawn	Pickled & 320 Grit polish	Passed	Passed

Chemical Composition (W.T. %)

Element	C	Si	Mn	P	S	Cr	Ni	Mo	-	-	-
Requirements	≤0.035	≤1.00	≤2.00	≤0.045	≤0.030	18.0-20.0	8.0-11.0	-	-	-	-
Ladle Analysis	0.017	0.37	1.34	0.038	0.001	18.24	8.01	-	-	-	-

Mechanical Properties

Test Item	Y.S. (MPa)		T.S. (MPa)	EL. (%)	Reduction of Area Z (%)	Hardness HRB	Cold Bend Test	Flaring Test	Flattening Test	P.M.L. TEST
	Rp0.2	Rm		In2in						
Requirements	≥205	≥515		≥35	-	≤80	-	-	e=0.09	-
Test Results	265	585		47	-	76	Passed	Passed	Passed	Passed

Non Destructive Tests

Remarks :

- ASTM A269-15a, ASTM A213-17, ASME SA213-17
- TUBES TESTED PER ASTM A1016
- SOLUTION HEAT TREATMENT: 1050°C X 1.5m/min
- NO WELD REPAIR WAS PERFORMED.
- PMI TESTING DONE ON EACH TUBE - SATISFACTORY
- IN COMPLIANCE WITH NACE MR0175/ISO 15156-2015
- FREE FROM MERCURY CONTAMINATION
- MATERIAL IS FREE FROM RADIOACTIVITY
- VISUAL CHECK IS SATISFACTORY
- COUNTRY OF ORIGIN: CHINA
- COUNTRY OF MELT: CHINA

Eddy Current Test

ASTM E 426

Passed

1 WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN TESTED AND THE TEST RESULTS ARE IN COMPLIANCE WITH THE TERMS OF THE PURCHASE ORDER OR CONTRACT
2 THE CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE COMPANY.

Prepared by:

Approved by:

[Signature]

[Signature]

TW METALS
REPORT
DATE JAN 18 19
S

ACCEPTED BY
[Signature]



SPECIFICATION CONTROL DRAWING

Line 5
M304TR0.375W.035

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION: ASTM A213 OR ASME SA213 OR ASTM A286 A1

WALL THICKNESS TOLERANCE PER ASTM A289 AS FOLLOWS:

OD (IN)	PERMISSIBLE OD TOL (IN)	PERMISSIBLE WALL TOL
UP TO 1/4	±0.005	±15%
1/4 TO 1/2 EXCL	±0.005	±10%
1/2 TO 3/4 EXCL	±0.010	±10%
3/4 TO 5/8 EXCL	±0.015	±10%
5/8 TO 8 EXCL	±0.030	±10%

PART NUMBER:

M304TRID.DDD|W|TTT
OD | WALL

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES
AND ".TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W.065

RELEASED
08/10/20

B	REFORMAT DWG. ADD SPECS (ZN D8-1), REF PAR 08-020A	CP	08.10.20
A	NEW ISSUE	DS	01.06.08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG APPR.			
APPROVED			
DE APPR.			
DATE	08.10.20		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO.	M304TR
TITLE	304/316 ROUND TUBING
SCALE	NTS
SHEET 1 OF 1	REV B

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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304TK0.375W.035
 DATE: 1/10/12

PO / BATCH NO.: P0042469/S152837

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 40FT
 QUANTITY INSPECTED: 40FT
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.375"
 THICKNESS RECEIVED: 0.375"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	ASTM A269
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	HT. N180131A313
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 61</u> DATE: <u>FEB 12 2019</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

KAISER ALUMINUM FABRICATED PRODUCTS

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CUSTOMER PO NUMBER: M49386111-1		CUSTOMER PART NUMBER: 42276		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 225622	LINE ITEM: 001	SHIP DATE: 04/03/2018	KAISER LOT NUMBER: F00265507	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 613.000 LB	QUANTITY: 537.000 PCS	B/L NUMBER: 229060	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO: TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO: TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

Actual Physical Properties

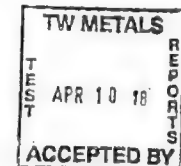
REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00265507	0001	0001	46.1	38.0	20.5	N/A	N/A	N/A
F00265507	0002	0001	45.2	35.9	19.0	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D21276	.61	.20	.21	.06	.95	.05	.03	.02	.00	.00	.00	.01	.02

Applicable Requirements:

Description: OD: 0.5000"; Wall: 0.0580"; Round @
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.
This Product Complies to FAR BAA, DFARS BAA, FAR TAA
COMPLIES TO DIN EN 10204 JAN 2005
No Weld Repair. Mercury Free.



Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5
TRADE AGREEMENTS).

Plant Serial: 00027876
Kaiser Order Number: 225622
Line Item: 001

✗

KAISER ALUMINUM FABRICATED PRODUCTS

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

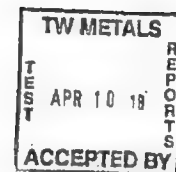
CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

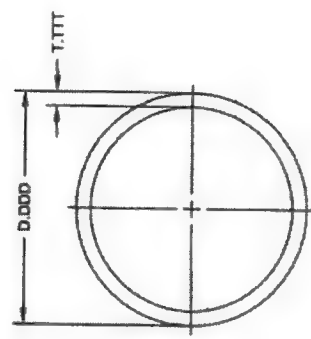
CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager



RELEASED
2013-07-02



PURCHASE MATERIAL: 6061-T6 T8/T8510/T8511 SEAMLESS TUBING

SPECIFICATION: WW-T-7008
OR QQ-A-200/8 OR QQ-A-225/8
OR AMS 4080 OR AMS 4082 OR AMS 4083
OR ASTM B210 OR ASTM B241

PART NUMBER: M6061T6T8.DDD|WT.TTT
OD WALL

WHERE "D.DDD" = OD IN INCHES
"T.TTT" = WALL THICKNESS
EG. 3/8" OD X 0.088 WALL = M6061T6T8.375W0.088
MATERIAL TOLERANCE: PER ANSI H35.2

C	COMPLETE REFORMAT, ADDED T8510 & T8511. ADDED AMS 4083, ASTM B210 & ASTM B241. ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	QP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED	W		
MFG. APPR.	M6061T6T		
APPROVED	W		
DE APPR.	W		
DATE	13.06.12		
	8081-T6 TUBING		
	SCALE		
	NTS		

DART AEROSPACE LTD
HAMMERSBURY, ONTARIO, CANADA
REV. C
DRAWING NO. M6061T6T
SHEET 1 OF 1
TITLE 8081-T6 TUBING
SCALE NTS
DATE 13.06.12

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WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061 T6 TD 500W .058
 DATE: 1/10/12

PO / BATCH NO.: P0042469/S152946

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 15651
 QUANTITY INSPECTED: 15651
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.500"
 THICKNESS RECEIVED: 0.500"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y	N	
CORROSION	Y	<input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y	N	AMS 4082
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y	N	LT: F002655070001
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 61</u> DATE: <u>9-89 FEB 12 2019</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

KAISER ALUMINUM

FABRICATED PRODUCTS

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: M49398375-1		CUSTOMER PART NUMBER: 42558-144		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 227768	LINE ITEM: 001	SHIP DATE: 01/21/2019	KAISER LOT NUMBER: F00290468	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 1021.000 LB	QUANTITY: 633.000 PCS	B/L NUMBER: 232325	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO: TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO: TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

Actual Physical Properties

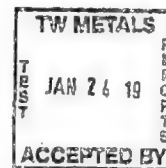
REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON% IACS	BEND
F00290468	0001	0001	47.5	43.7	16.5	N/A	N/A	N/A
F00290468	0002	0001	47.0	43.4	15.5	N/A	N/A	N/A
F00290468	0003	0001	47.4	43.2	16.0	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D22459	.58	.26	.20	.03	.95	.07	.04	.03	.00	.00	.00	.01	.02

Applicable Requirements:

Description: OD: 0.6250"; Wall: 0.0650"; Round @
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.
This Product Complies to FAR BAA, DFARS BAA, FAR TAA
COMPLIES TO DIN EN 10204 JAN 2005
No Weld Repair. Mercury Free.



Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5
TRADE AGREEMENTS).

Plant Serial: 00030628
Kaiser Order Number: 227768
Line Item: 001

KAISER ALUMINUM

FABRICATED PRODUCTS

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

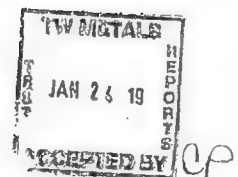
CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

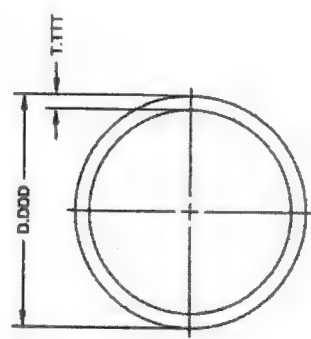
CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Nathaniel Stevens, Quality Manager



RELEASED
2013-07-02



PURCHASE MATERIAL: 8061-T6/T62/T6510/T6511 SEAMLESS TUBING

SPECIFICATION:
 WW-T-7006
 OR QQ-A-200/8 OR QQ-A-225/6
 OR AMS 4080 OR AMS 4082 OR AMS 4083
 OR ASTM B210 OR ASTM B241

PART NUMBER: M9061T6T6.DOD|WT.TTT
 OD | WALL

WHERE "D.DOD" = OD IN INCHES
 "T.TTT" = WALL THICKNESS
 EG. 3/8" OD X 0.088 WALL = M9061T6T6.375W0.088
 MATERIAL TOLERANCE: PER ANSI H35.2

C	COMPLETE REFORMAT ADDED T6510 & T6511. ADDED AMS 4083, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/6	CP	04.07.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED	W		
MFG. APPR.	W		
APPROVED	W		
DE APPR.	W		
DATE	13.06.12		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M9061T6T			
TITLE 8061-T6 TUBING			
REV. C SHEET 1 OF 1			
SCALE NTS			
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061-T6 TO 0.625W-005
 DATE: 19/02/12

PO / BATCH NO.: P0042469/S152953

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 48KT
 QUANTITY INSPECTED: 48KT
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.625"
 THICKNESS RECEIVED: 0.625"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	N	AMS 4082
CORRECT THICKNESS	<input checked="" type="radio"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	N	MT-F00290468 0003
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 61 9-89</u> DATE: FEB 12 2019	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

KAISER ALUMINUM FABRICATED PRODUCTS

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CUSTOMER PO NUMBER: M49383418-1		CUSTOMER PART NUMBER: 42588		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 225211	LINE ITEM: 001	SHIP DATE: 03/03/2018	KAISER LOT NUMBER: F00262536	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 638.000 LB	QUANTITY: 230.000 PCS	B/L NUMBER: 228717	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO: TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO: TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON% IACS	BEND
F00262536	0001	0001	48.0	43.2	19.0	N/A	N/A	N/A
F00262536	0001	0002	48.0	43.2	19.0	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D30862	.58	.24	.22	.03	.92	.07	.07	.02	.00	.00	.00	.01	.02

Applicable Requirements:

Description: OD: 0.6250"; Wall: 0.1250"; Round @
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.
This Product Complies to FAR BAA, DFARS BAA, FAR TAA
COMPLIES TO DIN EN 10204 JAN 2005
No Weld Repair. Mercury Free.



Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA (DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5 TRADE AGREEMENTS).

Plant Serial: 00027581
Kaiser Order Number: 225211
Line Item: 001

KAISER
ALUMINUM
FABRICATED PRODUCTS

Best in Class

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFICATION

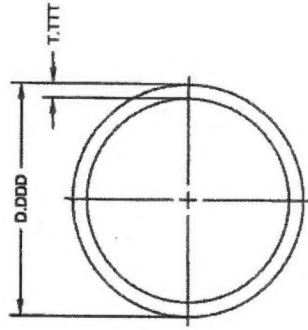
Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager





RELEASED
R 2013-07-02



PURCHASE MATERIAL: 6061-T6/7050-T6/7051 SEAMLESS TUBING

SPECIFICATION:

WW-T-7006
OR QQ-A-200/8 OR QQ-A-225/8
OR AMS 4080 OR AMS 4082 OR AMS 4083
OR ASTM B210 OR ASTM B241

PART NUMBER:

M6061T6T7D.DDD|WT.TTT
OD WALL

WHERE "D.DDD" = OD IN INCHES
"T.TTT" = WALL THICKNESS

EG. 3/8" OD X 0.058 WALL = M6061T6T7D.375W0.058

MATERIAL TOLERANCE:

PER ANSI H35.2

C	COMPLETE REFORMAT, ADDED T6510 & T6511. ADDED AMS 4083, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED	W		
MFG. APPR.	M6061T6T		
APPROVED			
DE APPR.			
DATE	13.06.12		
DART AEROSPACE LTD HAMPSHIRE, ONTARIO, CANADA		REV. C	
DRAWING NO. M6061T6T		SHEET 1 OF 1	
TITLE 8081-T6 TUBING		SCALE NTS	
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M60617670-625W.125

DATE: 19/02/12

PO / BATCH NO.: P0042469 / 5152983

MATERIAL CERT REC'D: Yes

QUANTITY RECEIVED: 36 FT

QUANTITY INSPECTED: 36Ft

QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.625"

THICKNESS RECEIVED: 0.625"

SHEET SIZE ORDERED:

SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	AMS 4082
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	LT: F00262636001
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	WEBSTER

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY:	<u>61</u>	SIGNED OFF BY:	
DATE:	<u>FEB 12 2019</u>	DATE:	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in